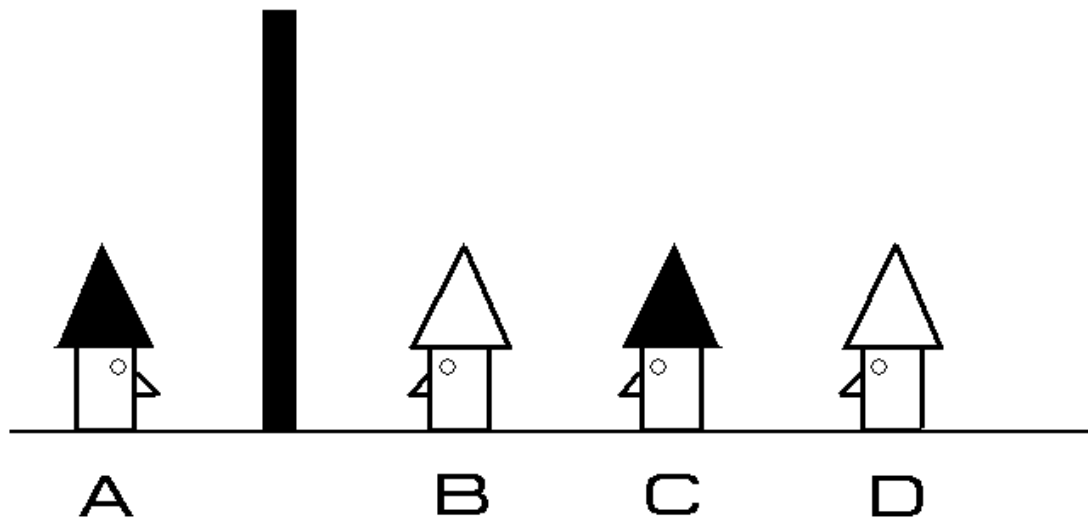


The Hats Problem



Shown above are four men buried up to their necks in the ground. They cannot move, so they can only look forward. Between A and B is a brick wall which cannot be seen through.

They all know that between them they are wearing four hats--two black and two white--but they do not know what colour they are wearing. Each of them know where the other three men are buried.

In order to avoid being shot, one of them must call out to the executioner the colour of their hat. If they get it wrong, everyone will be shot. They are not allowed to talk to each other and have 10 minutes to fathom it out.

After one minute, one of them calls out.

Question: Which one of them calls out? Why is he 100% certain of the colour of his hat?

This is not a trick question. There are no outside influences nor other ways of communicating. They cannot move and are buried in a straight line; A & B can only see their respective sides of the wall, C can see B, and D can see B & C.

Solution

C calls out that he is wearing a black hat. Why is he 100% certain of the colour of his hat?

After a while, **C** comes to the realization that he must answer.

This is because **D** can't answer, and neither can **A** or **B**.

D can see **C** and **B**, but can't determine his own hat colour.

B can't see anyone and also can't determine his own hat colour.

A is in the same situation as **B**, where he can't see anyone and can't determine his own hat colour.

Since **A**, **B**, and **D** are silent, that leaves **C**.

C knows he is wearing a black hat because if **D** saw that both **B** and **C** were wearing white hats, then he would have answered.

But since **D** is silent, **C** knows that he must be wearing a black hat as he can see that **B** is wearing a white hat.